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My Fitness Pal Calorie Tracker Usage in the Eating Disorders

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Abstract

Mobile phone and tablet usage has become a part of modern life. Mobile applications that count calories, such as My Fitness Pal, are frequently employed on a daily basis. Recent research has shown that in undergraduates, calorie tracking is associated with eating disorder pathology. In the current study (N = 105 individuals diagnosed with an eating disorder), we assessed usage of My Fitness Pal to track calories. We also assessed perceptions that My Fitness Pal contributed to eating disorder symptoms and if these perceptions were associated with eating disorder symptoms. We found that a substantial percentage (~75%) of participants used My Fitness Pal and that 73% of these users perceived the app as contributing to their eating disorder. Furthermore, we found that these perceptions were correlated with eating disorder symptoms. This research suggests that My Fitness Pal is widely used in an eating disorder population and is perceived as contributing to eating disorder symptoms. Further research is needed to clarify the role calorie tracking applications play within a sample of individuals with eating disorders.

Keywords

eating disorders; calorie tracking; My Fitness Pal

Mobile phone and tablet usage has become a part of modern day daily life. It is estimated that 64% of Americans own a smartphone, with even higher rates among younger adults (Smith, 2015). With the increase in smartphone and tablet usage comes the proliferation of mobile applications (apps) that can be used to influence health behaviors (Ellison, Wonderlich, & Engel, 2015). In the eating disorders, there are several apps that have been designed specifically for eating disorders and that have widespread usage for treatment, including Recovery Record and Rise Up+ Recover. Many of these programs use empirically-based principles and have potential to be used as adjuncts to successful treatment (Juarascio, Manasse, Goldstein, Forman, & Butryn, 2015).

Before widespread usage of mobile apps are applied in eating disorder treatment, it has been recommended that their feasibility, acceptability, and efficacy be evaluated (Juarascio *et al.*,

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2015). Although mobile apps could hold great promise for successful adjunctive treatment, it is also possible that existing apps, which are not specifically developed for eating disorders, could cause harm to individuals with eating disorders. For example, there are several existing calorie and health tracking devices that have not yet been evaluated in eating disorder populations and that were not designed for this specific type of population. It is important to understand how this type of app impacts individuals with eating disorders, given that individuals with eating disorders often become obsessive and perfectionistic about counting calories, which can lead to increased eating disorder behaviors and clinical impairment (Tchanturia, Lloyd, & Lang, 2013). Recent research suggests that, in an undergraduate sample, tracking calories with a mobile device or application is associated with higher eating disorder pathology (Simpson & Mazzeo, 2017). However, this association has not yet been tested in a clinical sample of individuals with eating disorders.

One of the most widely used calorie trackers is My Fitness Pal (Evans, 2016). My Fitness Pal is a calorie-counting mobile app that allows users to track and input their daily food intake. My Fitness Pal provides a breakdown of daily calorie and nutrient intake and gives feedback on the number of calories and nutrients needed. This app also allows the user to set weight and nutrition goals and advises on the amount of calories needed to reach such a goal. This app was designed for usage in healthy and overweight populations to help users reach weight and health goals (Higgins, 2016; though see other research by Laing, Mangione, & Tseng, 2015 that showed no difference between use of My Fitness Pal and weight loss treatment as usual). Despite the widespread usage of My Fitness Pal and related calorie counting apps, there is very little research on their usage and no research we could locate specifically in individuals diagnosed with eating disorders. The research that does exist on calorie-tracking applications suggests that the feedback on My Fitness Pal may lead to a restrictive, unbalanced diet (Rentko, 2015) and is associated with higher eating disorder pathology (Simpson & Mazzeo, 2017). Furthermore, it has been suggested that My Fitness Pal usage may lead to a risk of over-evaluation of weight and shape (which is a defining feature of eating disorders) and should not be used in those at risk for an eating disorder (Evans, 2016). The goal of the current study was to bridge this gap in the literature and begin to quantify usage and possible effects of such usage in a sample of individuals with eating disorders. We hypothesized that, despite the fact that My Fitness Pal was not designed for eating disorders, (a) it would be highly used in a sample of individuals with eating disorders, and (b) that a substantial percentage of individuals would self-report impairment from using the app.

Methods

Participants

Participants were 105 individuals recruited from a community eating disorder clinic to complete self-report measures of anxiety, depression, and eating disorder symptoms. Participants had all recently been discharged from a residential or partial hospitalization eating disorder treatment center (Median days since discharge at start of study = 140 days, Range = 1 day to 868 days). Participants were primarily female (n = 102; 96.2%), with an average age of 25.58 (SD = 7.59). Participants were primarily European American (n = 94;

92.1%); other ethnicities reported were as follows: Hispanic (n = 3; 2.9%), Multiracial (n = 3; 2.9%), Japanese (n = 1; .98%), Black (n = 1; .98%), The following eating disorder diagnoses were reported: AN = 78 (74.3%), BN = 10 (9.5%), BED = 2 (1.9%), Avoidant/ Restrictive Eating Disorder = 1 (1.0%), Other Specified Eating and Feeding Disorder = 14 (13.3%). Seventy-five participants (71.4%) reported that they were currently in some type of treatment for their eating disorder. Specifically, 61 participants (n = 57.5%) were in outpatient treatment, six participants (5.7%) were in intensive outpatient, three participants were in partial hospitalization (2.8%), and five participants (4.7%) were in inpatient or residential treatment. Participants reported spending on average 6.99 hours (SD = 21.05) a week in treatment.

Measures

Eating Disorder Diagnostic Scale—(EDDS; Stice, Telch, & Rizvi, 2000). This measure is a brief self-report measure used to diagnose eating disorders, such as anorexia nervosa (AN), bulimia nervosa (BN), and binge eating disorder (BED). The EDDS was used in the present study to determine eating disorder diagnoses from the DSM-5. The EDDS has demonstrated adequate internal consistency, as well as criterion and convergent validity (Stice, Fisher, & Martinez, 2013).

The Eating Disorder Examination – Questionnaire (EDE-Q) Version 4.0—(Fairburn & Beglin, 1994) is a 38-item questionnaire version of the Eating Disorder Examination (EDE) interview (Fairburn & Cooper, 1993) designed to measure attitudes and behaviors associated with eating disorders that have occurred over the past 28 days. The full EDE-Q was administered to assess restraint, shape concern, weight concern, and eating concern. Internal consistency in this sample was good (αs range from 0.80–0.87).

My Fitness Pal Measure—We assessed two questions related to My Fitness Pal. We asked a) Have you used My Fitness Pal to track your calories? and b) Did you feel that My Fitness Pal contributed to your eating disorder in any way? Question a was a yes or no response scale. Question b was assessed on a 6 point scale where 1 was *did not contribute to my eating disorder* at all and 6 was *very much contributed to my eating disorder*.

Procedures

All study procedures were approved by the Washington University Institutional Review Board. As part of a larger study, participants completed the measures listed above online. Participants were compensated ten dollars for their time.

Results

Have you used My Fitness Pal to track your calories?

Out of 105 participants, 78 (74.3%) reported that they had used My Fitness Pal to track calories.

Did you feel that My Fitness Pal contributed to your eating disorder in any way?

Out of the participants who reported using My Fitness Pal, 73.1% ($n = 57$) reported that My Fitness Pal at least *somewhat* contributed to their eating disorder, and 62.9% ($n = 49$) reported that My Fitness Pal at least *moderately* contributed to their eating disorder. A substantial percentage (30.3%, $n = 23$) reported that My Fitness Pal *very much* contributed to their eating disorder, and a smaller percentage (17.9%, $n = 14$) reported that My Fitness Pal did not contribute to their eating disorder at all. Please see Table 1 for a full break down of responses.

Relationship to eating disorder symptoms

Higher scores on feelings that My Fitness Pal contributed to their eating disorder was related to higher eating disorder symptoms on all subscales of the EDE-Q (restraint: $r = .25$, $p = .019$; shape concern: $r = .34$, $p < .001$; weight concern: $r = .36$, $p < .001$), with the exception of the eating concerns scale ($p = .519$).

Discussion

We found that a substantial percentage of participants reported using My Fitness Pal calorie tracker app, with approximately 75% of respondents answering that they had used the app to count calories. Of the app users, 73% stated that the app had at least somewhat contributed to their eating disorder, with 30% reporting that the app very much contributed to their eating disorder. Additionally, the more likely an individual was to report that usage of the calorie tracker had contributed to their eating disorder, the more likely they were to have higher eating disorder symptoms. Of course these data are retrospective and self-report, and therefore, we cannot determine if there is a causal relationship between usage of My Fitness Pal and eating disorder symptoms. However, this study adds to the recent growing literature showing a relationship between calorie tracking and eating disorder pathology (Simpson & Mazzeo, 2017).

Our goal from this research is to inform clinicians and patients of the frequent usage of this app in an eating disorder population and that My Fitness Pal, and possibly other calorie tracking applications, should be used with care. Clinicians may consider inquiring about calorie tracking app usage and encourage patients to track their food intake in a manner conducive to the eating disorder population, such as using apps, such as Recovery Record, that employ empirically-based strategies (for a review see Juarascio *et al.*, 2015). We also think this research supports that additional research and advocacy should be implemented surrounding calorie tracking applications in an eating disorder population. For example, calorie tracking apps could consider adding psycho-education about eating disorders or referral information to their app. The app currently gives warnings to not eat below a certain calorie level, though there is no specific information or screening for eating disorders. Furthermore, individuals with eating disorders may find existing warnings rewarding, which may reinforce their eating disorder and restrictive behaviors (Rentko, 2015). Future research should consider exploring if calorie-tracking apps differ across diagnostic groups to test if these findings generalize to all eating disorder diagnoses and in individuals at risk for eating disorders. Additionally, future research should consider conducting prospective and

experimental studies to test if calorie tracking apps contribute to impairment in an eating disorder sample. Finally, future research may consider using qualitative methods to understand how fitness trackers contribute to eating disorder symptoms.

There are several limitations of this research. First and foremost, the research presented here is retrospective and based on self-report. Second, we did not ask about other calorie tracking applications and we only assessed usage as yes/no (we did not measure frequency of usage). Future research should test usage of additional calorie tracking apps, as well as what tracking applications eating disorder professionals use in treatment. Finally, there is no psychometrically valid measure of calorie tracking usage, and therefore, we used a measure developed solely for the purposes of the study. Additionally, the measure consisted of two one-item measures, which have inherent psychometric limitations. However, in spite of these limitations, it is clear that there is a high usage of My Fitness Pal in individuals with eating disorders and that such usage has the potential to contribute to eating disorder symptoms. We hope that future research will continue to clarify the relationship between eating disorders and calorie tracking applications.

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Highlights

- We tested usage of My Fitness Pal Calorie (MFP) Tracking app in a clinical sample of individuals with eating disorders
- 75% of participants reported using this app
- 73% of app users endorsed an item asking if MFP partially contributed to their eating disorder

Table 1

Self-reported Contribution of My Fitness Pal to Eating Disorder ($N = 78$).

Amount of Contribution to Eating Disorder (Rated on a 1 to 6 Scale)	Frequency	Percentage
Very Much Contributed to My Eating Disorder (6)	23	30.3%
(5)	4	5.1%
Moderately Contributed (4)	22	28.2%
Somewhat Contributed (3)	8	10.3%
(2)	7	8.9%
Did Not Contribute to My Eating Disorder At All (1)	14	17.9%